

CLAIMS

We claim:

- 1 1. An improved boat trailer, comprising:
 - 2 a boat support having a front end, a rear end and a
 - 3 plurality of trailer wheels disposed along the rear end;
 - 4 a trailer hitch disposed on the front end of said boat
 - 5 support for releasably securing the trailer to a tow vehicle;
 - 6 a linear track disposed along the center of said boat
 - 7 support having a front end, a back end and a belt receiving slot
 - 8 in the center of the track;
 - 9 a load bearing vehicle movably disposed along said track,
 - 10 having a front edge, a rear edge and a top surface for receiving a
 - 11 boat;
 - 12 a movement actuator for moving said load bearing vehicle
 - 13 along said track, having a first end and a second end, whereby the
 - 14 first end is secured to the front edge of said vehicle and the
 - 15 second end is secured to the rear edge of said vehicle; and
 - 16 a crank in contact with the movement actuator, whereby the
 - 17 crank causes the movement actuator to move and, thereby, causes
 - 18 said load bearing vehicle to move along the track.

1 2. The boat trailer according to claim 1, wherein the load
2 bearing vehicle comprises:

3 a mast receiver fixedly secured to the top surface of said
4 load bearing vehicle, having an open top end adapted for
5 receiving a mast and a plurality of fastener receiving holes for
6 securing a mast inside of said mast receiver;

7 a mast, releasably secured inside of said mast receiver;

8 a docking plate disposed along the top of the mast for
9 receiving a bow ring of the boat being positioned on the
10 trailer;

11 a latch housing for securing the bow ring to the trailer;

12 a latch release mechanism;

13 a centering bar for supporting the front end of the boat
14 being positioned on the trailer; and

15 a plurality of wheel assemblies for allowing the load
16 bearing vehicle to move along said track.

1 3. The boat trailer according to claim 1, wherein said
2 crank is selected from the group consisting of a rotating hand
3 crank having a crank handle rotatably secured to a crank
4 sprocket and a power winch secured to a sprocket.

1 4. The boat trailer according to claim 3, wherein said
2 movement actuator comprises:
3 a timing belt strip having a first end and a second end;
4 an idler roller;
5 a tensioning device for maintaining a fixed spacing between
6 the moving portions of the timing belt strip to take up slack in
7 the belt strip; and
8 a plurality of sprockets;
9 whereby the first end of said timing belt strip is secured
10 to the front edge of the load bearing vehicle, then passes
11 underneath the idler roller, then through the tensioning device
12 and around the sprocket of the crank, then passes back through
13 the tensioning device and around the plurality of sprockets
14 through the lower portion of the track, then moving directly
15 over the slot in the track, and then the second end of said
16 timing belt strip is secured to the rear edge of the load
17 bearing vehicle.

1 5. The boat trailer according to claim 4, wherein said
2 movement actuator further comprises a plurality of adjustment
3 bolts and an adjustment slot for adjusting the idler roller to
4 remove slack from the timing belt strip.

1 6. The boat trailer according to claim 2, wherein said
2 docking plate comprises:

3 a main body having a right and a left portion;

4 a plurality of support rods, a first support rod being
5 disposed through the right portion of the main body and a second
6 support rod being disposed through the left portion of the main
7 body, each of said support rods being mounted to the mast by a
8 pivot;

9 an aperture disposed along the center of the main body
10 between the right portion and the left portion for releasably
11 receiving the bow ring of the boat during docking; and

12 a target antenna attached to the docking plate to allow the
13 occupant of the boat to see the load bearing vehicle when
14 loading the boat onto the trailer to ensure that the bow ring
15 enters the aperture.

1 7. The boat trailer according to claim 6, wherein said
2 latch housing is positioned behind the aperture of said docking
3 plate, said latch housing comprising:

4 a latch having a pair of latch jaws for releasably engaging
5 the bow ring of the boat;

6 a pair of jaw pivots for pivotally mounting the latch jaws
7 to the latch housing; and

8 a lever for opening and closing said latch jaws;
9 whereby the bow ring of the boat enters into the aperture
10 of the docking plate and engages the latch jaws that close
11 around the bow ring.

1 8. The boat trailer according to claim 7, wherein said
2 latch release mechanism further comprises:

3 a release lever;

4 a release lever pivot secured to the top surface of the
5 load bearing vehicle;

6 a release cable, having a first end attached to the latch
7 lever and a second end attached to the release lever; and

8 a tension spring for preventing undue stretching of the
9 release cable;

10 wherein the release lever pivots back and forth about the
11 release lever pivot and pulls the release cable, which then
12 pulls the latch lever to release the bow ring from the latch
13 jaws so that the boat may be removed from the trailer.

1 9. The boat trailer according to claim 1, further
2 comprising a plurality of fasteners for securing said movement
3 actuator to the load bearing vehicle.

1 10. The boat trailer according to claim 9, wherein said
2 fasteners are fastening plates and bolts for securing said
3 movement actuator to the load bearing vehicle.

1 11. The boat trailer according to claim 1, further
2 comprising a plurality of debris scrapers disposed along the
3 rear edge and the front edge of said load bearing vehicle for
4 wiping debris from the track as the load bearing vehicle moves.

1 12. The boat trailer according to claim 1, further
2 comprising a plurality of wheel assemblies disposed along the
3 sides of the load bearing vehicle, said wheel assemblies
4 comprising a plurality of axles secured to said vehicle, a
5 plurality of wheels rotatably mounted to said axles and a
6 plurality of spacers disposed between said wheels.

1 13. The boat trailer according to claim 1, further
2 comprising a rubber roller disposed along the back end of the
3 track for protecting the track against damage.

1 14. An improved boat trailer, the improvement comprising:
2 a load-bearing vehicle capable of supporting a boat, a
3 linear track having a forward end and a rearward end, and movement
4 actuator having two ends,
5 the load-bearing vehicle having an upper surface for
6 supporting a boat, a front edge and a rear edge, the vehicle being
7 movable along the track between the forward end and the rearward
8 end;
9 the ends of the movement actuator attached to the front and
10 rear edges of the vehicle, respectively; and
11 a crank in contact with the movement actuator, whereby the
12 crank causes the movement actuator to move and, thereby, causes
13 the load-bearing vehicle to move along the track.

1 15. An improved boat trailer, the improvement comprising:
2 a linear track disposed along the center of the trailer
3 having a front end, a back end and a belt receiving slot in the
4 center of the track;
5 a load bearing vehicle movably disposed along said track,
6 having a front edge, a rear edge and a top surface for receiving a
7 boat;
8 a movement actuator for moving said load bearing vehicle
9 along said track, having a first end and a second end, whereby the

10 first end is secured to the front edge of said vehicle and the
11 second end is secured to the rear edge of said vehicle; and

12 a crank in contact with the movement actuator, whereby the
13 crank causes the movement actuator to move and, thereby, causes
14 said load bearing vehicle to move along the track.

1 16. The improvement according to claim 15, wherein the
2 load bearing vehicle comprises:

3 a mast receiver fixedly secured to the top surface of said
4 load bearing vehicle, having an open top end adapted for
5 receiving a mast and a plurality of fastener receiving holes for
6 securing a mast inside of said mast receiver;

7 a mast, releasably secured inside of said mast receiver;

8 a docking plate disposed along the top of the mast for
9 receiving a bow ring of the boat being positioned on the
10 trailer;

11 a latch housing for securing the bow ring to the trailer;

12 a latch release mechanism;

13 a centering bar for supporting the front end of the boat
14 being positioned on the trailer; and

15 a plurality of wheels for allowing the load bearing vehicle
16 to move along said track.

1 17. The improvement according to claim 15, wherein said
2 crank is selected from the group consisting of a rotating hand
3 crank having a crank handle rotatably secured to a crank
4 sprocket and a power winch secured to a sprocket.

1 18. The improvement according to claim 17, wherein said
2 movement actuator comprises:

3 a timing belt strip having a first end and a second end;

4 an idler roller;

5 a tensioning device for maintaining a fixed spacing between
6 the moving portions of the timing belt strip to take up slack in
7 the belt strip; and

8 a plurality of sprockets;

9 whereby the first end of said timing belt strip is secured
10 to the front edge of the load bearing vehicle, then passes
11 underneath the idler roller, then through the tensioning device
12 and around the sprocket of the crank, then passes back through
13 the tensioning device and around the plurality of sprockets
14 through the lower portion of the track, then moving directly
15 over the slot in the track, and then the second end of the said
16 timing belt strip being secured to the rear edge of the load
17 bearing vehicle.

1 19. The improvement according to claim 16, wherein said
2 docking plate comprises:

3 a main body having a right and a left portion;

4 a plurality of support rods, a first support rod being
5 disposed through the right portion of the main body and a second
6 support rod being disposed through the left portion of the main
7 body, each of said support rods being mounted to the mast by a
8 pivot;

9 an aperture disposed along the center of the main body
10 between the right portion and the left portion for releasably
11 receiving the bow ring of the boat during docking; and

12 a target antenna attached to the docking plate to allow the
13 occupant of the boat to see the load bearing vehicle when
14 loading the boat onto the trailer to ensure that the bow ring
15 enters the aperture.

1 20. The improvement according to claim 19, wherein said
2 latch housing is positioned behind the aperture of said docking
3 plate, said latch housing comprising:

4 a latch having a pair of latch jaws for releasably engaging
5 the bow ring of the boat;

6 a pair of jaw pivots for pivotally mounting the latch jaws
7 to the latch housing; and

8 a lever for opening and closing said latch jaws;
9 whereby the bow ring of the boat enters into the aperture
10 of the docking plate and engages the latch jaws that close
11 around the bow ring.